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Combat Crew

strategic air command

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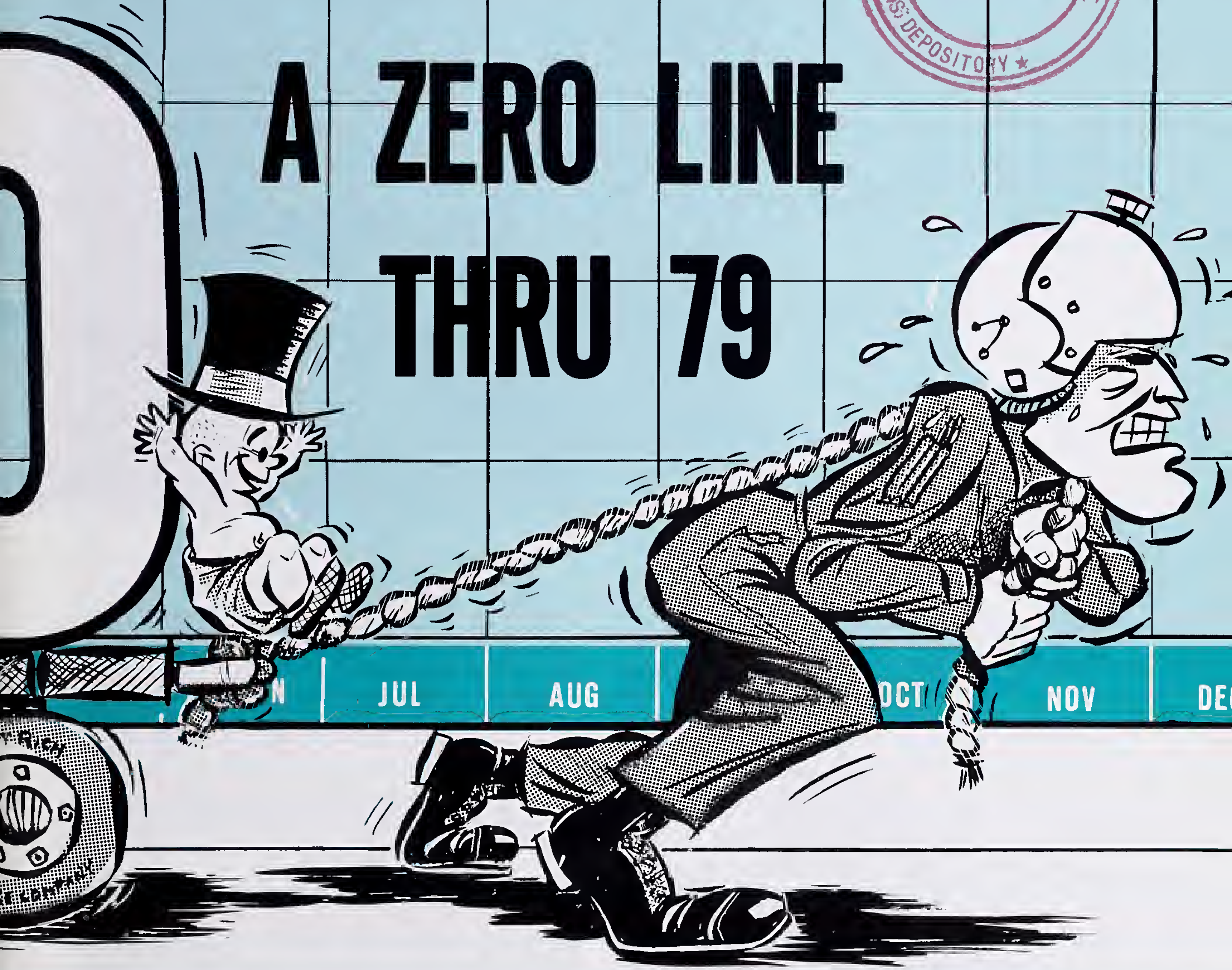
A ZERO LINE THRU 79



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JANUARY, 1979

COMMON SENSE

Col Burr V. Miller, Jr.
SAC/Director of Safety

There are many in the command who will be pleased with the reduction of our fatalities in both ground and air mishaps over the past year. Through the combined efforts of all of us we have reduced fatalities over the past year. On a graph it looks great. Or better yet, look at the percentage of reduction in fatalities which are down nearly one-third. Certainly, we have made great progress but can we really be satisfied and praise our safety record because only 46 of our SAC personnel were killed in ground mishaps this year versus 73 in 1977? Or how much can we pat ourselves on the back because there was only one major aircraft mishap during 1978? Considering the loss of life, associated impact on families and friends, and damage to and loss of equipment, I suggest we need to be honest with ourselves and recognize that although our safety awareness has improved, we still have a long way to go. We simply are not getting through to some of our people the importance of using common sense and accepting responsibility. Most of our automobile fatalities in 1978 were single car accidents in which the driver fell asleep and left the road, or failed to negotiate a curve, or simply lost control due to speed too fast for conditions. The time of day was a factor since most occurred during the early morning hours of darkness. In a few, alcohol was a problem but not the problem reflected on the national scale.

Our bike riders did not fare much better since eight of the 46 killed were motorcyclists. Two of the eight were passengers and in five of the mishaps the cyclist was at fault due to loss of control at high speeds. Six of the fatalities were wearing helmets but don't use this fact to fuel the helmet discussion since not even a helmet is going to help when control of the bike is lost at 80 mph plus. The other major area of fatalities was due to drowning where eight of our people lost their lives. It should come as no surprise that seven of the eight were considered good swimmers.

Almost every fatality in 1978 was caused by the failure of the person(s) involved to use common sense. To go one step further, 95% of all fatalities, injuries, and damage to equipment experienced within this command is a direct result of not using common sense. As a child we learn the results of putting our hands on a hot burner, but we still have Air Force people who forget the lesson. We keep children out of trees because of the dangers of falling, then demonstrate to them what can happen by falling off aircraft wings, maintenance stands, and off of building roofs. Common sense, you bet, that is all a tech order is, and in nearly all of our ground mishaps common sense is lacking and the T.O. violated. For example, in an attempt to eliminate many of the industrial dangers we provide safety equipment which in too many instances is not used. A mishap occurs, and the disturbing factor that too frequently comes out of the investigation is that not only was the individual aware of the proper way to do the job and safety equipment to be used, but supervision over looked the unsafe practice either by direct action or inaction, then supported the individual in his deviation with the statement: "But he/she is one of my best people."

I feel we need to get really serious about this safety business. The responsibility for safety belongs to every person in this command and not to just a few people who are charged with administering the wing safety function. One of our problems may be that too much lip service is given to safety. The last statement in many of our briefings is, "Safety will not be compromised." or "Safety is paramount." Do we really mean it? I wonder, based upon results often reflected in our daily operations.

I suggest we cannot be satisfied with our command safety program, nor should we ever be as long as we continue to have our people killed, injured, and have equipment damaged due to irresponsible actions. Safety is an attitude, an attitude dependent upon each of us doing our job — the proper way — the way we know it is to be done — the way the tech order says. It also requires we insure others follow common sense rules whether it be on the job, the highway, or in off-duty activities. "A zero line in 79." Sure, it is just a slogan, but it is achievable if all of us would simply use the common sense we have developed throughout our lives.

Combat Crew

Magazine of the Strategic Air Command - 29th Year of Publication

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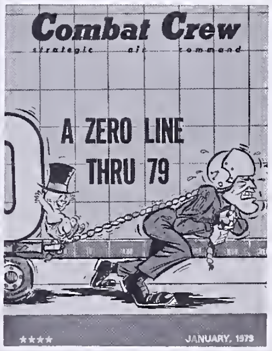

ON OUR COVER

WE'RE WORKING FOR A ZERO LINE IN 79.

SACRP 127-1 **VOL. XXIX, NO. 1** **JANUARY 1979**

COMBAT CREW is an internal publication of the Strategic Air Command with the sole purpose of promoting safety. The contents of this magazine are informative and not to be considered as directive in nature. Facts, testimony and conclusions of all mishaps printed herein may not be construed as incrimination under Article 31 of the Uniform Code of Military Justice. All names, dates and places used in conjunction with mishap stories are fictitous. Written permission must be obtained from Headquarters, Strategic Air Command, before any material may be reprinted by other than U.S. Air Force organizations. Use of funds for printing this publication has been approved by Hq. USAF. Distribution FX, controlled by IGFC. SAC units submit distribution requests through local PDO.

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GIANT VOICE 78

The 380th from Plattsburgh roared in to Barksdale AFB to win the 1978 Bombing and Navigation Competition, and capture the coveted Fairchild Trophy for the fourth consecutive time. It happened late in October at the end of Giant Voice '78, a three-month competition among Strategic Air Command, Tactical Air Command, Air National Guard, Air Force Reserve, and Royal Air Force Strike Command manned bomber and air refueling tankers. In all, 11 awards for excellence in bombing and navigation were presented.

The 380th Bomb Wing took the top award by amassing 4,281 points out of a possible 4,800. Runner-up was the 28th Bomb Wing from Ellsworth AFB with 4,198 points. The Fairchild Trophy recognizes the wing with the best combined bombing and navigation team scores for both bombers and tankers.

The 28th Bomb Wing at Ellsworth won the Saunders Trophy, which goes to the tanker unit attaining the most points in all phases of the competition. The 28th BMW competitors scored 1,479 points. The trophy honors Brig Gen Don W. Saunders, former commander of SAC's 57th Air Division.

The Mathis Trophy, based on total unit points compiled in bombing, was captured by the 509th Bomb Wing from Pease AFB who earned 2,936 points.

Plattsburgh's 380th BMW also won the John C. Meyer Trophy. The 380th was awarded the trophy on the basis of the best score on the final low level bombing mission. Presented for the first time in 1976, the trophy is named in honor of a former commander in chief of SAC.

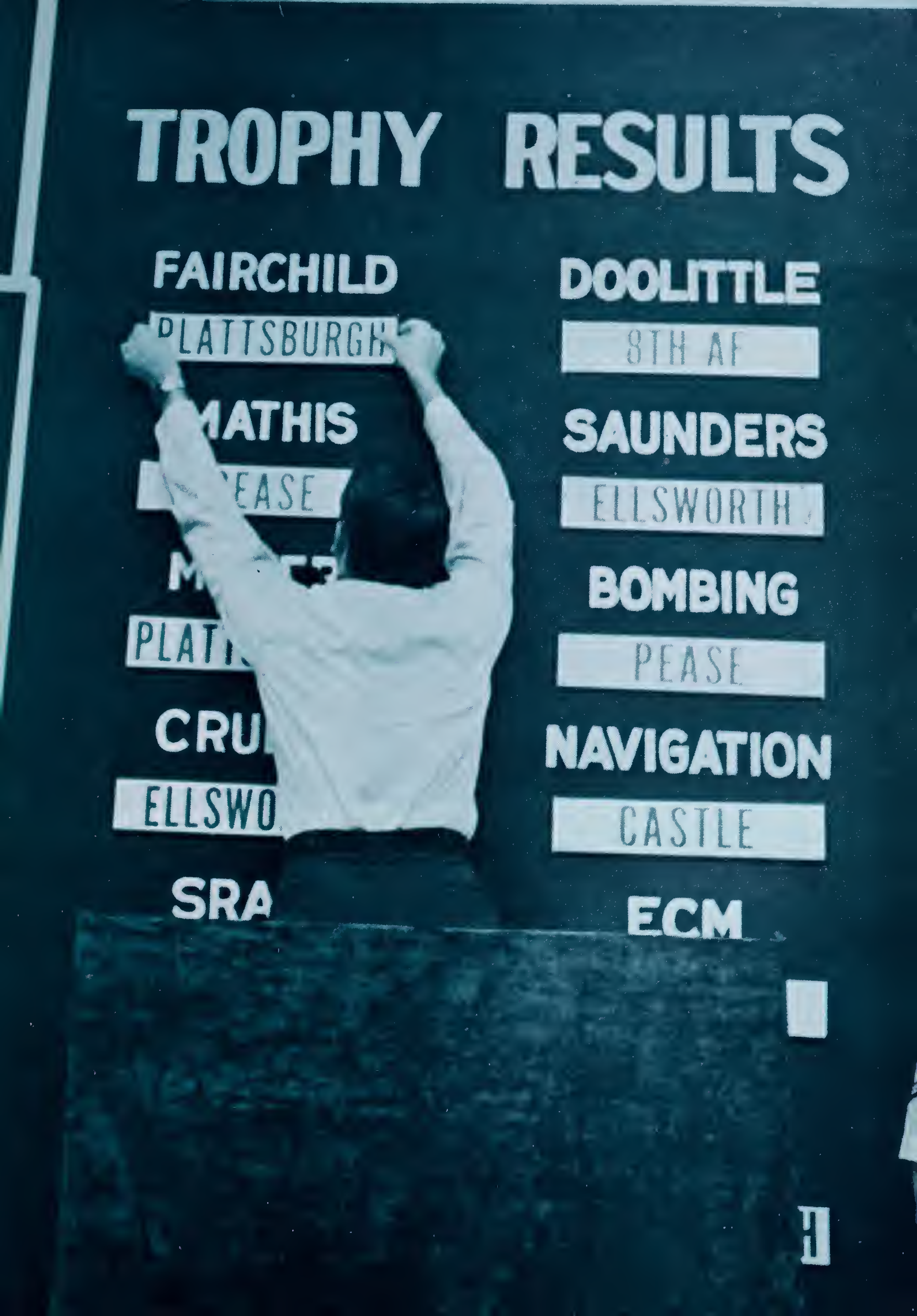
The Maj James F. Baarsch Memorial ECM Trophy was awarded for the first time this year to the B-52 unit that compiled the highest total points for electronic countermeasures matrix (ECM) activity on all semi-final and final missions. The trophy was won by the 92d Bomb Wing from Fairchild AFB with 589 points out of a possible 600.

The Russell E. Dougherty SRAM Trophy, also awarded for the first time this year, was presented to the 319th Bomb Wing, Grand Forks AFB, for the highest score amassed on all simulated SRAM launches.

The 8th Air Force took the Lt Gen James H. Doolittle Trophy. The trophy goes to the top SAC Numbered Air Force whose B-52 units compile the best overall results in low level bombing during the competition. Eight Air Force crews averaged a total of 3,139 points to win the trophy.

The Best Bombing Trophy, presented to the crew amassing the most bombing points, was picked off by the 509th Bomb Wing from Pease AFB with 1958 points.

The 28th BMW at Ellsworth was also presented the William J. Crumm Linebacker Memorial Trophy. The trophy, honoring a former commander of SAC's 8th Air Force, goes


TROPHY RESULTS
FAIRCHILD
PLATTSBURGH
MATHIS
PEASE
PLAT
CRU
ELLSWO
SRA
DOOLITTLE
8TH AF
SAUNDERS
ELLSWORTH
BOMBING
PEASE
NAVIGATION
CASTLE
ECM

Members of the 380th BMW, Plattsburgh AFB, indicate they are "Number 1." They won the Fairchild Trophy for the fourth consecutive year with 4,281 points. The Fairchild Trophy is awarded to the bomber-tanker wing based on total points earned by combining all semi-final and final bomber and tanker activity.

The 28th BMW, Ellsworth AFB, captured the Crumm Trophy with 541 points. The 319th Bomb Wing from Grand Forks AFB also scored 541 points, but the 28th BMW was declared the winner by virtue of the higher impact points. The Crumm Trophy is awarded to the B-52 or Vulcan unit attaining the most points in high altitude bombing.

Crewmembers from the 380th Bomb Wing, Plattsburgh AFB, pose with the John C. Meyer Trophy. The 380th BMW amassed 4,667 points for the Meyer Trophy. The trophy is awarded to the unit that compiles the most points in low altitude bombing by the finalist crews on both semi-final and final missions.

Members of the 28th Bomb Wing, Ellsworth AFB, with the Saunders Trophy. The 28th BMW captured the trophy with 1,479 points. The trophy is awarded to the tanker unit attaining the most points in all phases of Giant Voice.

Mathis Trophy winners of the 509th Bomb Wing, Pease AFB. The trophy is awarded to the top bomber unit based on total points compiled in bombing.

The new Russell E. Dougherty Short Range Attack Missile (SRAM) Trophy was won by the 319th Bomb Wing, Grand Forks AFB. The trophy, given to the wing with the highest score in simulated SRAM launches was taken by the 319th with 1,892 points.

to the B-52 or RAF Vulcan unit that compiles the most points in high altitude bombing. The 28th BMW scored a total of 541 points. The 319th Bomb Wing from Grand Forks AFB also scored 541 points. The 28th BMW was named the winner by virtue of the higher bombing impact points.

In addition to unit trophies, outstanding Bomber and Tanker Best Crew Awards were presented to Crew S-02 from the 379th BMW, Wurtsmith AFB, (B-52), Crew R-113 from the 924th Air Refueling Squadron, Castle AFB, (KC-135), Crew S-52 from the 380th BMW (FB-111), and RAF Crew Number 01 (Vulcan).

MISSIONS FLOWN

The competition began in July when all SAC crews competed in the initial phase. Actually, Giant Voice was conducted in three phases. The first phase took place from July to September within the participating units. Each bomber crew was required to make three low level synchronous double release bomb runs. Each of the runs had to be on different low level strategic training ranges or on different missions. In addition, runs had to be accomplished on the first bomb run across the site for that mission. By the end of September, each unit identified four bomber crews compiling the most points on preliminary phase Giant Voice activity as their crews to participate in the semifinal phase.

The final phase for bomber aircrews started with a common route entry north of Dallas, Tex., where they proceeded to an IP for a simulated high altitude bomb at Post STR. Each aircraft was again scored for accuracy of position and timing of the simulated release.

Shortly after release, all participants entered the Giant Voice II low altitude route northwest of Abilene, Tex. Upon entry of the low altitude route, all bomber aircraft descended to 5,000 feet and navigated by radar along the specified route to the first low level IP for a simulated bomb run

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GIANT THRUST II

AN AIRCRAFT COMMANDER'S VIEW

Captain John Lawton
60 BMS, Andersen AFB, Guam

On the night of 10 September 1978 the concrete ramps at Andersen AFB, Guam began to buzz with the fervor of a unit preparing for war. The increased activity was taken in stride by the old airfield as it recalled the launching of numerous combat missions during World War II and the Korean War. The years between 1965 and 1973 were also familiar to the airpatch since thousands of B-52 sorties loaded with conventional weapons departed here for the battlefields of Southeast Asia in "Operation Arc Light."

On this night, however, the 500 pound bombs being loaded on 14 B-52D's assigned to the 43d Strategic Wing were targeted for the tiny island of Farallon de Medinilla, 165 miles northwest of Guam. The target area was unfortified, undefended, and uninhabited because this was not the beginning of a real war, but the start of the surge test operation called GIANT THRUST II. This exercise was designed by the Strategic Air Command to develop a data base that could be used to predict sortie generation capabilities in future planning. Innovative changes in maintenance procedures which would allow a dramatic reduction in aircraft turnaround time were also evaluated.

From the beginning, B-52 aircrew members of the 60th Bombardment Squadron knew that they too would be put to the test during GIANT THRUST II. The plan called for a very structured schedule for the entire week which would begin early Monday morning and come to an end five days later when the last of 135 sorties was scheduled to land. The squadron was divided into six flights with three crews per flight. Each flight was assigned a cell color and flew each sortie in cell. During the week, each crew maintained a cycle of activity which consisted of a 15-hour crew duty day followed by

17 hours of crew rest before the next flight period. Each duty day consisted of two separate 3-hour sorties, complete with pre and post-takeoff briefings.

Mission planning started with a short mission briefing covering the standard items of weather, route, and special activity, followed by specialized briefings for each crew position. After the paperwork was completed and turned in, the crews reassembled at their buses, then proceeded to the inflight kitchen, life support, and the aircraft. Up to this point, the routine was very similar to a normal training mission except that everybody had a checklist to document arrival and departure times at each stop. This information will provide data for planners to develop future worldwide contingency operations.

My crew and I had the privilege of flying the first sortie of GIANT THRUST II, accompanied by Major General Andrew Pringle, Jr., commander of the Third Air Division. As we approached the north ramp revetments where the aircraft were being prepared for flight, the increased activity was evident. Lights and vehicles were everywhere. Flatbed trucks lined with iron bombs were parked in empty revetments awaiting their turn to be uploaded. Numerous maintenance "bread trucks" were scurrying about with a full complement of specialists in case of equipment failure during the launch. And of course, the ever present fire truck was in place should the unexpected happen.

Aircraft preflight went smoothly and very quickly as a result of the abbreviated checklist designed especially for this test. The average preflight time, including exterior inspection, was about 15 minutes. With nonessential items eliminated, the checklist allowed for a rapid "bag drag" to the spare aircraft should a problem arise before takeoff. The mission profile consisted of approximately 1½-hour enroute time to the first target with a 20-minute race track to the secondary target. On the departure leg, each aircrew ran the applicable conventional bombing checklists and accomplished necessary cell coordination items. A fire control system range and azimuth check plus a cell defensive systems status check were required. This information allowed the cell leader to arrange the three aircraft in the most favorable position based on suspected enemy defenses. On the first run, each aircraft bombed the target using synchronous bombing procedures. If all weapons were successfully released on the first run across the target, emergency bombing tactics were practiced on the second bomb run.

When the second release was completed, the cell returned to Guam and prepared for a simulated bomb run against the "Milky" Strategic Training Range at Northwest Field. These attacks, utilizing evasive action procedures, were added to the mission to provide statistics on the Electonic Countermeasures equipment reliability in this rapid turnaround environment and to evaluate each aircraft's ability to paint Milky's Wet Snow beacon. As soon as the ECM run was complete, each aircraft in the cell obtained clearance for a full stop landing.

After a quick check of the bomb bay for hangers, we taxied to the same parking spot we had left only three hours before. We were met at the parking spot by the recovery team whose members were

Continued on page 28

OPS HAZARDS

CASE OF THE MYSTERIOUS THRUSTER
Shortly after takeoff, a B-52 lost the pilot's escape hatch without warning. The aircraft was at FL 200 on the standard instrument departure.

The pilot had visually checked the hatch during preflight using a flashlight to insure the red paint stripe was in view on the hatch lock pin. Also, the hatch-not-locked light functioned properly prior to flight.

Upon landing, a team of experts examined the ejection seat and hatch areas. A recent seat modification had been performed, but it was determined no errors had been made during the modification. However, the alignment of the hatch was found to be incorrect. The jack arm rail showed wear and damage and the rollers were riding shallow in the channels.

The team concluded that it was not possible to make a definitive finding because the hatch apparently was lost in a remote and rugged area and was not recovered. The only scenario consistent with the evidence is that the hatch thruster fired for reasons unknown.

I'D GIVE IT UP WATSON BUT I HAVE THIS FEELING WE'RE GETTING CLOSE.

POWERLESS PETROL PASSER A KC-135 ground crew could not apply external power to the aircraft for preflight. While trouble-shooting the problem, they found that a parachute hangar bar with a parachute on it had dislodged and punctured the vent screen of the P22 Aux power panel. This panel is located behind the galley area. One end of the hangar bar was lodged against the "A" phase and "C" phase external power circuit breakers. This had caused a short across these phases making it impossible to apply external power to the aircraft.

Crewmembers as well as ground crews should make certain that equipment is not hung in this area of the KC-135. A small amount of double-checking stored equipment could prevent a disastrous mishap.

SILENCE THE HORN, I CAN'T HEAR! A National Transportation Safety Board investigation of a civilian airliner crash attributed the causes to age old problems which plague pilots. The crew failed to check and utilize all altitude instruments and give required altitude and approach performance calls. In addition, the crew turned off the ground proximity warning system because the loudness made cockpit conversation difficult. They also failed to properly configure the aircraft for landing.

The aircraft was in a 2000 foot per minute descent at 500 feet AGL. Both the pilot and first officer misread their altimeters. They thought they saw 1500 feet when the altimeter actually read 500 feet.

"When that figure got in my mind as I ran my scan after that, I was seeing 400 and 300 feet; but in my mind I was thinking in terms of 1400 and 1300 feet," the captain said. The engineer turned off the ground proximity warning on what he thought was instructions from the pilot. The pilots had decreased the descent rate slightly and thought this had silenced the horn. The misreading of altitude instruments is not uncommon among pilots and in this case, it cost three lives.

GIANT THRUST II THE MAINTENANCE VIEW

Lt Colonel Thomas A. Bainbridge
43 SW/MAM Andersen AFB, Guam

The Strategic Air Command tested the generation capability of the B-52D in a conventional role during the GIANT THRUST II test at Andersen AFB, Guam, from 11-16 September 1978. Test parameters were centered around 14 aircraft supporting 27 sorties per day for a five-day period. Personnel from B-52 units throughout SAC augmented maintenance, supply and other units of the 43d Strategic Wing to support the increased activities.

The results were highly satisfactory. All 135 sorties were effective, with only eight late takeoffs. Three of these late takeoffs were the result of weather.

Under test criteria, an aircraft could be launched within ten minutes of its scheduled takeoff time and would be considered on time. An aircraft could also take off up to one hour late and still make its time over target, thus being mission effective. All 135 sorties made their scheduled time over target.

During the test, no engine changes were required and the electric and hydraulic systems that normally require extensive time to effect repair, performed better than previous failure data indicated. The weather, which is quite unpredictable during this time of year, was also extremely cooperative in that only three delays, totalling two hours and thirty minutes, were experienced due to lightning within three miles.

Many questions have been asked about what the maintenance organization did differently to produce the higher sortie rate and what other fac-

Continued on Page 26

EGRESS UPDATE

– B-52 –

FRED BUCK

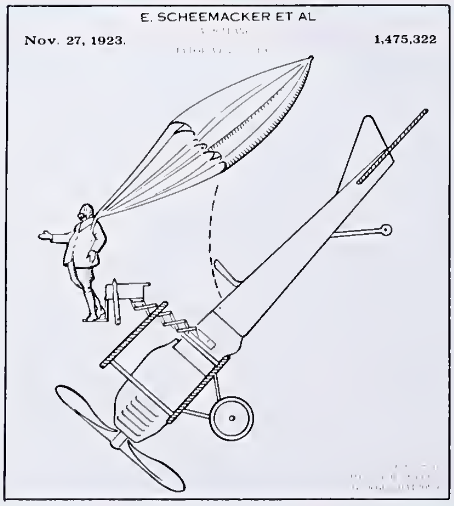
On 2 August 1819, a fearless soul named Charles Guille leaped from a balloon thousands of feet above Vauxhall Gardens in New York City and safely descended to the ground with the aid of a new device called a parachute. In so doing he made history by accomplishing the first recorded parachute jump. On 1 March 1912, Captain Albert Berry, U.S. Army, jumped from the wing of a Benoist Pusher over Jefferson Barracks, St. Louis, Missouri, and recorded the first parachute jump from an airplane. These two hardy individuals pioneered a method of emergency escape or egress from airborne aircraft. Egress systems have since been undergoing continual evaluation and evolution.

During the First World War, it was considered unmanly for a pilot to wear a parachute. This was an admission that he lacked confidence in his own abilities. Balloonists, however, did not share this feeling. The observation balloonist was painfully aware that he was suspended by a large hydrogen-filled bag. The hydrogen burned very rapidly when ignited by a hot bullet passing through the bag. When he observed that he had become the object of the attention of enemy pilots, discretion was the better part of valor; he usually returned expeditiously to the ground by parachute. Toward the latter end of the conflict a few "cowardly" (spelled S—M—A—R—T) airplane crewmembers, who were aware of the successful escapes of the balloonists, began to wear the parachute.

By the time World War II came along the military had changed its viewpoint. An airman represented a considerable investment of time and money. Insuring his survival was good economics as well as good strategy. A trained and experienced man was more valuable than any new replacement could be, so parachutes were directed for nearly all military aircraft.

The egress procedures in those years involved physically climbing over the side, out a hatch, bomb bay, or any other available opening. At the airspeeds of that era the success rate of this method was acceptable, but as airspeeds increased a system was needed that could overcome excessive wind blast and assure clearance of airplane aft control surfaces. Through necessity, the ejection seat was developed.

In 1922, an American inventor named Emile Scheemaker applied for a patent on a mechanism intended to push a crewman out of an airplane into the airstream. The device was a spring actuated scissors that when actuated, extended the seat several inches above the



Forward Facing, Upward

cockpit, allowing the distressed aviator to simply slide off to be clear of the airframe. Patent number 1,475,322 was granted on 27 November 1923. There is no record that the device was ever actually used.

The present day ballistics ejection seat was a giant stride in emergency egress; however, the seat itself created another problem; Man/seat involvement after initial separation. After the crewman separates from the seat the drag of the seat slows it more rapidly than the man, allowing separation until the parachute deploys. Then the drag of the man is greater, and sometimes the seat overtakes the man injuring him or damaging the parachute.

In 1971 the Air Force Life Support System Project Officer directed the Boeing Wichita Company to design a modification to the existing seat that would improve the escape potential from the B-52. The Boeing team proceeded with a primary objective: safe man recovery in the shortest practical time. The varied factors of high and low altitude, high and low airspeed, and climb or descent during egress promised rough going. The secondary objective was: the man and seat must have a different trajectory after separation.

Accomplishment of the two objectives was simple, yet complex — design a parachute that would fully deploy rapidly at low airspeed but more slowly at high airspeed, and increase the drag of the seat to as great as the drag of a man in a parachute.

The time allotted from ejection to full canopy deployment was a many faceted problem. First, time was required to move the seat, with the man, out and clear of the airplane. This action was about as rapid as the normal man could withstand. Second, time was required to adequately separate the man from the seat before parachute canopy deployment. Separation time was reduced to the minimum with the installation of a man/seat separator on the aft facing seats and an automatically deployed drogue chute on all seats. The drogue chute's purpose was to increase the drag of the seat to prevent overtaking the parachute, assuring that the seat had a different trajectory from the parachute.

The initiation of canopy opening is an all important factor. A delay is necessary — too soon will almost assure man/seat involvement, too late will prohibit low altitude ejection. Exhaustive tests conducted at the high speed test track at Holloman AFB, New Mexico, proved 3/4 second delay as ideal.

The time from initiation to full canopy deployment

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is a critical factor. Low altitude and low airspeed require rapid opening while high altitude or high airspeed requires low opening shock to prevent injury to the man or damage to the parachute. The new design of the parachute canopy incorporates a pull-down vent line. The line is an extra shroud line attached from a risor to the apex of the parachute canopy. The line prevents the center of the canopy from billowing and filling immediately. At low airspeed the result is that the filling air volume is forced out toward the canopy skirt, forcing the skirt to spread more rapidly. Tension on the canopy shroud lines is less at lower airspeeds and allows the canopy skirt to spread rapidly. At high airspeed the pull down vent line will fail, allowing the canopy to billow and fill apex first, preventing excessive opening shock. The tension on the shroud lines is greater at high airspeeds and tends to hold the skirt near closed, allowing some air to spill out until the man has slowed considerably. At low altitudes, in dense air, this slowing occurs rapidly. The distance the man travels through the air after a high airspeed ejection is much greater than at low airspeed, providing a greater amount of filling air.

The original design work or Engineering Change Proposals (ECP-1646 for the B-52D and ECP 1647 for the B-52G/H) became TCTO 1B-52D-597 and 1B-52-2147 respectively. The modifications to the seats included an extended guide rail, drogue chute support arms, support arm bridle, and on the aft facing seats a man/seat separator and the drag plate. The extended guide rail prevents tumbling by stabilizing the seat until the drogue chute arms are in place and the drogue chute begins to deploy.

The type of parachute intended for use with the seats prior to incorporation of T.O. 1B-52D-597 and 1B-52-2147 is the BA-21A. The BA-21A has the C-9 canopy, one second delay after separation or 14,000 feet, and a zero delay lanyard. The parachute intended for use after incorporation of these T.O.'s is the BA-27A. The BA-27A has the C-9A canopy, with the pull-down vent line and 3/4 second delay below 14,000 feet, and does not have a zero delay lanyard. If, for some reason, the BA-21A parachute is used with the modified seats there is no problem provided the zero delay lanyard is not used. The one second delay will simply assure more separation from the drogue equipped seat; however, use of the zero delay lanyard greatly increases the possibility of man/seat involvement.

The downward ejection seats have always presented a low altitude problem. The crewmembers in the lower compartment are ejected toward the ground by the ejection seat. While the presently installed man/seat separator decreases the time of separation, the new drogue chute installation provides more rapid separation, lowering the safe ejection altitude.

These modifications have greatly improved the probability of survival in all egress situations. The result is an expanded safe ejection envelope in the B-52. We must emphasize that even though the safe ejection envelope is expanded, a crewmember must not delay ejection during an emergency egress situation and must strictly follow the procedures and limits outlined in the Flight Manual. Because of the very brief time and the forces involved in emergency egress from high speed airplanes, the egress process is a violent action, placing extreme physical stress on the human body. This new system is a giant stride toward decreasing the degree of violent stresses imposed. The knowledge gained from the testing of this system will no doubt be applied to other egress systems. The never ending evolution of egress systems goes on and will do so as long as man has the desire to fly faster and faster.

Thanks to Boeing-Wichita Service News, Sept.-Oct. '78.

AFT Facing, Upward

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3

ACE TOPICS

PLAN AHEAD — Changing seasons generally require preparation for the months ahead. In the fall this means breaking out the winter jackets, lighting the pilot light in the furnace and many other activities associated with planning for winter. In the flying business the same type of planning is also necessary if you want to avoid the hazards of winter flying. The all weather operation section of the T-37-1 is an excellent place to start your preparations. There is some very important information to be found there. Information which unfortunately gets less attention than it deserves. One bit from this part of the flight manual failed to make an impression on at least two T-37 crews in the recent past. The crews were forced into icing conditions during instrument approaches. Nothing too hairy since the ceiling was at circling minimums. After a short time in the ice, however, the pucker factor pegged out when they discovered they could not move the control stick forward or aft. Reference to Section 7 of Dash One will reveal a warning concerning the elevators freezing to the horizontal stabilizer.

There is one other situation which has caused grief to more than a handful of Tweet pilots through the years. Though not mentioned in the Dash One or ATCM 51-4, it is possible to encounter icing well below the freezing level. Here is how it happens. Let's say the freezing level is 7,000 feet MSL, field elevation 1,000 feet with overcast clouds from 1,000 feet AGL to 4,000 feet AGL and clear above. No ice is forecast since there is no visible moisture near or above the freezing level. The weather ship launches, and sure enough, no ice. A little later a Tweet reports ice during descent and shortly thereafter flames out an engine on GCA downwind. Let me explain how this happens. On the ground the temperature may be in the 40's but after an hour or so of flying at altitudes well above the freezing level the aircraft becomes super cooled. During descent, after entering the clouds, ice forms on the aircraft's surface. If conditions are right, the build up of ice can be significant. Since the aircraft is below the freezing level it will begin to warm up causing the ice to break off. If the ice enters the engine, a flame out is a good possibility. Now is the time to bone up on cold weather procedures. Be prepared, hope for the best, plan for the worst. Capt Wilson, ATC/SE

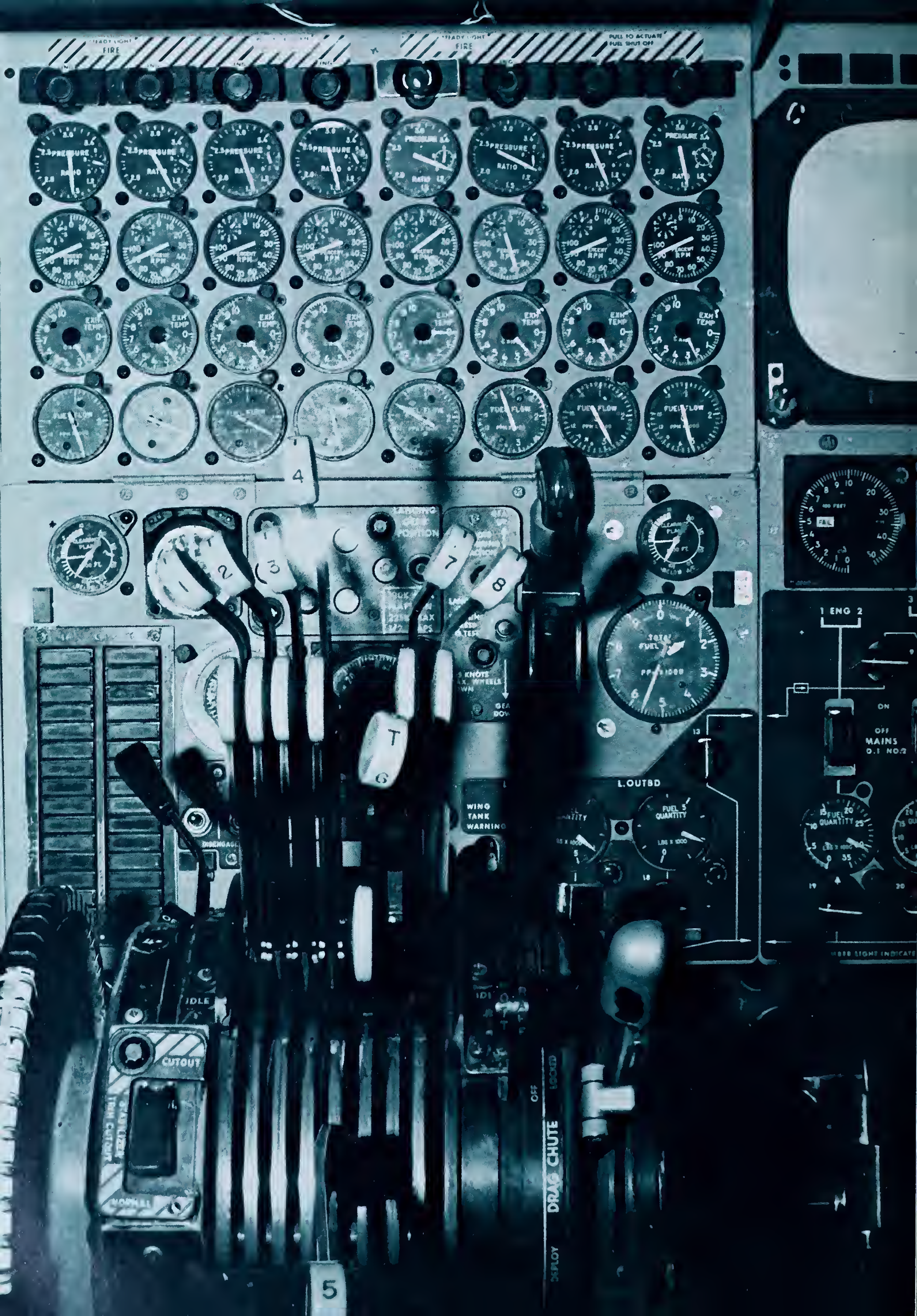
EMBEZZLEMENT: A GREEN BAG CRIME — When an aircraft is built it has a given fatigue life built in, basically predicated on a number of desired flying hours and a known spectrum of loads for the mission. This fatigue life may be looked upon as a deposit in a Swiss bank.

Everytime an aviator flies a machine it's like going to the Bank; every maneuver is a withdrawal. To give you an idea of how this all plays, when you pull 2 Gs you withdraw 25 cents. A 3 G pull takes 50 cents from your account and a 4 G pull about $1.50. When you pull 5 Gs you're in the $15 to $20 range and a 6 G pull draws about $3,000. Now flying our aerospace machines within the design parameters is no problem . . . Uncle Sam gave the engineers enough bucks to cover us plus an occasional mega-withdrawal. However, it's when we continually "go to the Bank" in the over G range that we're asking for trouble. That's why we hire inspectors . . . to take a look at our account after a wild spending spree to see if we're still okay.

If the system works as designed we should have no problems . . . however, occasionally we may find an embezzler in the ranks . . . one who would punch off a G meter for whatever motive! This Soul On Board has just made a withdrawal of a substantial sum with an unknown impact on our account!

It is therefore imperative that whenever we even suspect an over G, we write it up. Personally, I'd rather a maintenance guy find a fatigue crack than me discover it at 500 kts in a 5 G pull.

Capt Holliker 71 FTW/SE


STEADY LIGHT FIRE
PULL TO ACTUATE FUEL SHUT OFF
PRESSURE RATIO
PERCENT RPM
EXH TEMP
FUEL FLOW
4
1
2
3
7
8
T
6
TOTAL FUEL
1 ENG 2
ON
OFF
MAINS
L.OUTBD
FUEL 5 QUANTITY
FUEL QUANTITY
WING TANK WARNING
IDLE
CUTOUT
NORMAL
DRAG CHUTE
DEPLOY
OFF
LOCKED
5

Leaky seals, shorts & blown ducts

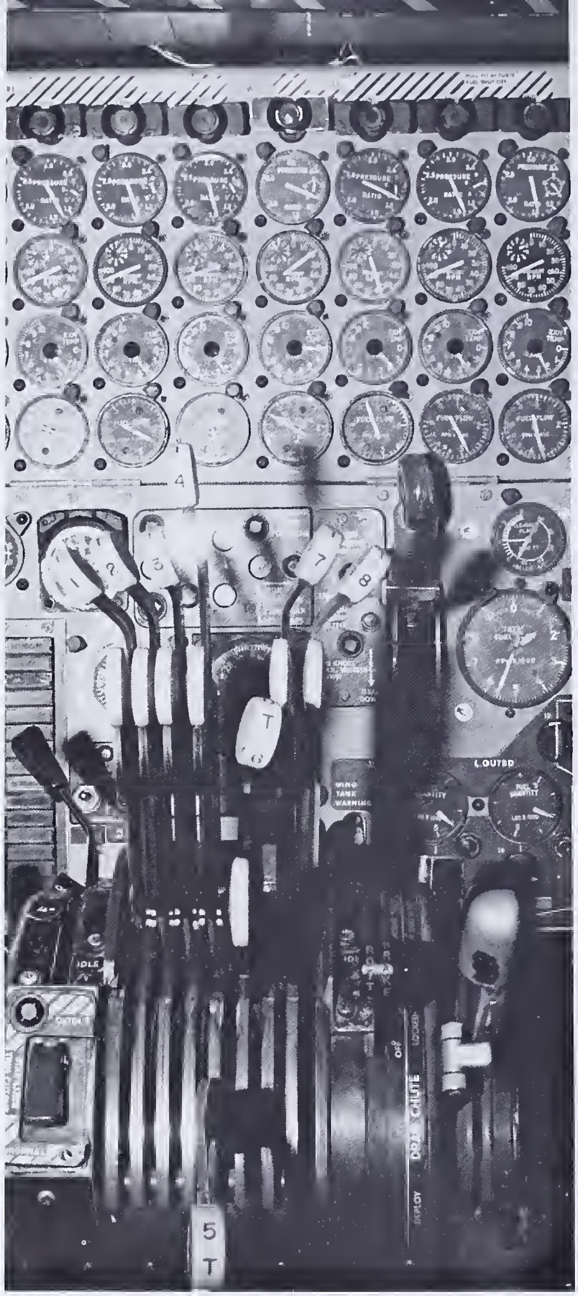
Maj Emmet C. Quill
37th BMS, Ellsworth AFB

Shortly after liftoff for a normal B-52 training mission, the number five fire light flickered and then came on steady. Engine instruments were normal with the EGT at 605°C (G model). While passing 8000 feet MSL, the pilot shut down the number five engine. The fire light remained on after engine shutdown. The number six engine was retarded to idle and the fire light remained on. The crew aborted the mission and delayed in the local area while reducing the gross weight for landing. An hour and 27 minutes after takeoff, the number five engine oil pressure, DC fuel flow, and number three pod control circuit breakers popped, and a slight burning smell was noted by the crew. At this point, number six engine was shut down. The number five fire light remained on with both number five and six engines shut down. The remainder of the flight was without incident, and the crew made an uneventful six engine approach and landing.

Investigation revealed that the nacelle pneumatic starter anti-ice tap off duct for the number five engine had ruptured for an undetermined reason. Numerous fragments of the duct were scattered throughout the engine bay. Three pieces of the duct penetrated the fire wall.

The ruptured duct allowed 16th stage bleed air to enter the engine bay which caused the fire light to illuminate. The hot air melted the sealant protecting the fire detector wiring where it enters the fire wall. This caused chafing of the fire detector wire resulting in a short which caused the fire light to remain illuminated after both engines were shut down. With the adjacent engine in the pod running, bleed air from it still entered the number five engine bay. Eventually, this hot air resulted in damage to the quick change harness, main engine harness, fuel control unit, anti-ice valve and the fuel flow transmitter.

There are a couple of salient points in all this. The first is the mention of a flickering fire light. The flickering fire light is perfectly normal operation of the system under the right conditions. This is because the fire detectors in the engine bays on the B-52G and H aircraft, unlike the other models, consists of two switches mounted on the engine fire wall. The forward switch is mounted on the fire wall just aft of the by-pass duct case assembly, and the midpoint of the threshold temperature range at which the switch will operate is 230°C in the H model. You will remember that the max temperature available from the engine bleed air system is 399°C at TRT. This is the temperature available at the tap on the engine. By the time the air gets to the manifold duct temperature gauge sensor mounted in the duct in the number one wheel well, the temperature is considerably less. Even so, the duct temperature on the gauge will run 200°C or better at NRT, and this is from precooled air from engines three and four. Unprecooled air temperature is about one-third hotter. Now, if you have a leaky seal on the bleed air tap on the engine, you will have a stream of hot air loose in the engine. If the stream is directed toward the fire wall, you will heat the detector. Since the switch is a (partially) metallic reed, engine vibration will cause the intermit-



tent operation if the temperature is right around threshold. So, for a short time, you can indeed have a flickering fire light. The upshot of all this discussion on air temperature is that there is enough heat out there to cook the H out of your accessories.

The B-52D, G, and H flight manuals used to contain a discussion of engine bleed air leak, however, during the tech order revision around 1973, this information was deleted in its entirety from the G and H manuals. The D manual still has a short discussion of this in section IV. Currently, the only reference to this problem is in the Emergency Engine Shutdown Checklist, paragraph 2(b) which states: "After closing the throttle and pulling fire shutoff switch, if fire warning light continues to illuminate, and there is no visible indication of fire, reduce power on adjacent engine in nacelle." What is not addressed by this statement is the question of what you do if (a) the fire light flickers at you, or (b) the fire light remains on bright and steady after you retard the adjacent engine to idle. There are several possibilities for such behavior:

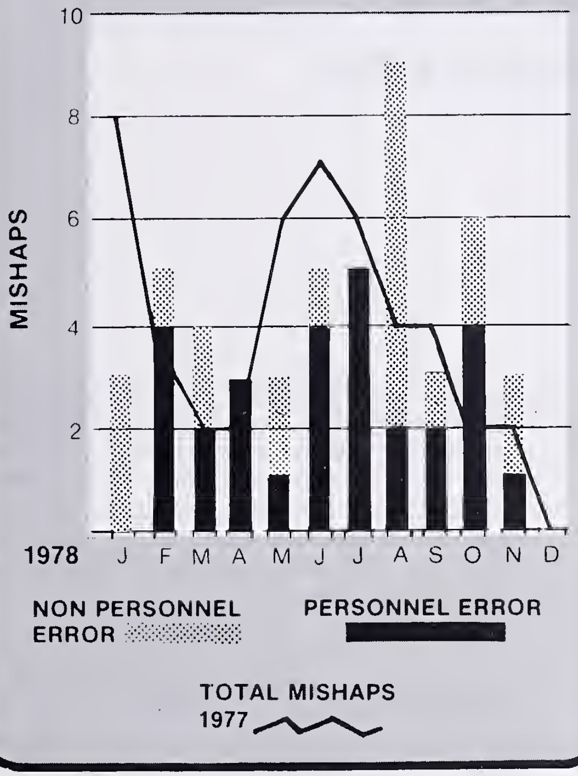
- You have a fire out there that is still being fed from either fuel or hydraulic fluid. You'll soon figure that out.
- You have an engine bleed air leak due to: Bad seal on the bleed air tap on the engine. Failed clamp where the ducting is joined together. Failed duct.
- You have a ruptured or slipped burner can in the adjacent engine that has resulted in a hole being burned in the combustion chamber wall and a stream of hot exhaust gas being directed against the fire wall, burning a hole in the fire wall, and tripping the fire detector on the engine next to it. You will note, in this case, that shutting down the engine with the fire light doesn't do a whole lot for you. This problem occurs a couple times each year and is potentially disasterous if both engines in the pod are not shut down.
- You have a broken wire in the fire detector system and there is a short which causes a continuous fire light.
- The fire detector has fallen off the fire wall (because the mounting screws were not safety wired down) and the detector, still attached to its wires, is wedged between the fire wall and the hot air duct. (You laugh but that actually happened to me.)

Personally, I have never had a sustained engine fire (yet), however, I have had leaky seals and blown ducts. I have not had a blown burner can myself, but as mentioned before this occurs in the fleet several times each year. I have been lied to once by a broken wire, and once by that fallen detector. My personal reliability rate for the fire detector system is 85% although, overall, the system is better than that.

The point of all of the above is that if the fire light will not go out when you shut down the engine, and flight conditions permit (you won't fall out of the sky), consider shutting down the adjacent engine, because the odds are that you have a heat source out there. If the light goes out after you have shut down both engines in the pod, then you have obviously solved that problem. Don't believe the system and you can wind up with your tail in a confined space, or worse. Take no precipitous action, but don't dawdle.

Missile Mishap Report

DOD CLASS A, B and C



REPEAT MISHAPS — Missile mishaps are costly, and are bad news to everyone. Therefore, we go to great lengths to prevent their occurrence and to prevent recurrence. Evidently we did not do the job well enough last month. A work cage at a MINUTEMAN wing was dropped down the personnel access hatch (PAH). At the same wing 20 days later another work cage was dropped down the PAH. While this was going on, another MINUTEMAN wing damaged power supply drawers when the S-2 emergency fan switch was not turned on during LF backout. Three months later an instrument air compressor was not turned on, resulting in more damaged power supplies.

Replacing equipment that is damaged through personnel error is costing us many hard to come by dollars. Let's put some vigor into our safety programs and stop this damage and loss to our equipment.

MAXI-BRAKES. A maintenance team had positioned the RV van over the launcher prior to a G&C recycle. A team member drove the tractor forward to clear the trailer's king pin as required by tech data and applied the service brakes. The tractor experienced a loss of braking, rolled down an incline, and snapped the site power cable that was caught on the fifth wheel locking handle. The tractor, after rolling forward 20 feet and then backward 10 feet was finally stopped by the emergency "Maxi-brakes." The obvious question is why did it take so long for the emergency brakes to activate? The investigation revealed that the driver was not proficient in the emergency braking procedures for the White Freightliner Model 6474TD he was operating and had not attended a 40-hour SAC truck driver training course covering the emergency braking systems of the four different tractors. Since emergency braking procedures are different in each type of tractor, measures are required to insure drivers are knowledgeable and proficient in the model of tractor they operate.

HURRY, HURRY, HURRY! Following an AGM-69 download from an FB-111 the missile was rolled by the crew and then raised by the MHU-83 jammer approximately five feet above the ground. The load team chief and other team members walked toward the weapon trailers, leaving no spotters for the jammer driver. The driver, with some restriction to his visibility, proceeded toward the weapon trailer with the elevated missile. The rear portion of the missile contacted the left side of the FB-111 radome. In addition to the radome damage, the 180-degree missile fin was broken and the platform assembly was chipped. Moving the missile on the jammer in the high position and not having spotters caused this mishap. A contributing factor to the mishap was that the crew was rushed to complete several work orders prior to the morning launch of aircraft.

Maintenance should be pre-planned and maintenance teams should be given ample time to complete their work without short-cuts and rushing to meet a deadline.

BIG INSTRUMENT

QUESTIONS AND ANSWERS

Captain Tome H. Walters, Jr.
1st Combat Evaluation Group
Barksdale, AFB, Louisiana

Q. When I diverted into Moose Bay Zeppelin Drome, the only SID I could find was the Antler 3, dated April 1947. How do I know if a SID is still current?

A. An original SID is numbered "ONE." Revisions go from "TWO" through "NINE" and then start over at "ONE." SID's are renumbered when procedural changes are made that affect flight safety; e.g., revisions to routings, altitudes, clearances, navaid data, etc. The SID does not have to be renumbered if individual transitions are canceled or if noncritical data is revised. In the exaggerated case of the Antler 3, we suggest you ask the base operations dispatcher. The more common problem is having a SID that's four or five years old; the Antler 6, dated March 1973, for example. In that case, clearance for the Antler 6 means you're in business. But "cleared as filed, via the Antler 7" means go back to Start and get a new SID (or request radar vectors).

Q. An instructor mentioned that when I brief the SID during mission planning, I should compare it with an approach plate. Is that really necessary?

A. Yes. AFM 51-37, paragraph 3-2b, points out that obstructions that are apparent on an instrument approach procedure may not be printed on the SID. In fact, the SID will probably have only the controlling obstacle depicted. Air Force guidance for SID design says — "Do not clutter the chart by showing more than the absolute minimum of restricted areas, radials, etc." A "clean" SID can't display all the information you may need to know. When you compare the SID with an approach plate, you get additional information about obstacles and minimum altitudes. Base operations will have charts posted on the wall with more information you might store away in your data bank: local training areas, crossing low altitude airways, or traffic flow to an adjacent airport. This is one of those items that fits in the category of How to Get Ahead of the Game.

Q. When cleared to descent at the pilot's discretion, do I have to notify ATC if I level off at 10,000 feet while I slow to 250 KIAS?

A. No. The Air Traffic Controller Handbook, Pilot/Controller Glossary, states that Pilot's Discretion "means that ATC has offered the pilot the option of starting climb or descent whenever he wishes and conducting the climb or descent at any rate he wishes. He may temporarily level off at any intermediate altitude. However, once he has vacated an altitude, he may not return to that altitude." ATC expects and anticipates turbojet aircraft will level at 10,000 feet to slow to 250 KIAS during an enroute descent or published penetration. No radio call is required.

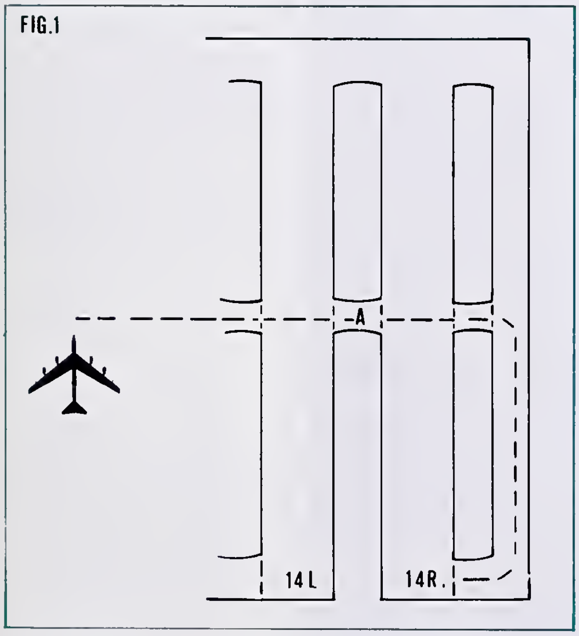
Q. Some of our aircraft are now equipped with the new AN/ARN-118 TACAN. After I check the TACAN during preflight, should I also check it at a certified ground check point?

A. Yes. We put that question to the OPR for AFM 51-37. They checked with the manufacturer and gave us the following answer: The self-test that is performed when you press the test switch is only an internal check of the unit itself. It does not check other elements in the system and would not detect an error that might be caused by the antenna or in the wiring to the unit. The preflight check contained in your tech order meets the requirement to check the bearing pointer against the CDI. So the only items you need check at the check point are the tail of the bearing pointer and DME against the radial/DME posted on the sign.

Q. I came across a note in a flying magazine that said clearance to "taxi to" a runway was going to be redefined. Has there been a change?

A. Yes, there has been. We'll give the entire redefinition from the Air Traffic Control Handbook and then an explanation and example: "When authorizing an aircraft to 'taxi to' an assigned takeoff runway, the absence of holding instructions authorizes the aircraft to 'cross' all runways which the taxi route intersects, except the assigned takeoff runway. It does not include authorization to 'taxi onto' or 'cross' the assigned takeoff runway at any point. In absence of holding instructions, a clearance to 'taxi to' any point other than an assigned takeoff runway is a clearance to cross all taxiways and runways that intersect the taxi route to that point." The key point is that clearance to taxi to a runway does not give you clearance to cross **that** runway during your taxi route. Look at Figure 1. If you were cleared to "taxi to runway 14R via the center taxiway," you would be cleared to point A. You could taxi across 14L, but you could not cross 14R without further clearance. Two points: (1) Listen to the wording of the taxi clearance; (2) When in doubt, ask.

FIG.1



KUDO's — The former Chief of the Instrument Division at CEVG, Major Dennis Carpenter, has been awarded the Colonel Joseph B. Duckworth Annual USAF Instrument Award for 1977. The award goes to the individual who made the most significant contribution to the field of safe instrument flying for the past year. We're obviously not prejudiced in saying the award was well deserved. Our sincere congratulations.

If you have any questions or comments about this article, or any questions in general concerning instrument procedures and techniques, drop a line to 1CEVG/STI, Barksdale AFB LA 71110 or call Autovon 781-3648. Don't be shy. We're here to help. And, we often learn from your questions.

GIANT VOICE '78

CONTINUED FROM PAGE 7

The 92d BMW, Fairchild AFB, captured the ECM Trophy with 589 points. This is the first year that the Maj. James F. Baarsch Memorial ECM Trophy was awarded. It is given to the B-52 unit that compiles the highest total points for electronic countermeasures activity on all semi-final and final missions.

(Right) Crew S-02 from the 379th Bomb Wing, Wurtsmith AFB, was the Best B-52 crew. Their 2,144 point total was 42 points higher than the second place unit.

(Center) Members of the 509th Bomb Wing, Pease AFB, with the Bombing Trophy. The trophy, awarded to the wing with the most bombing points, was picked off by Pease with 1,958 points.

(Bottom right) The 924th Air Refueling Squadron, Castle AFB, with the Navigation Trophy. The trophy is awarded to the tanker unit with the most points compiled on their final mission in celestial navigation.

at Lefors STR. All crews again were required to use electronic countermeasures to defend their aircraft against a simulated threat environment. After release, the aircrews resumed navigation procedures to the next Control Point for a second simulated double synchronous release at Hitchland STR. This final mission differed from the semifinal in that a third low altitude STR, LaJunta, was used to score an additional electronic countermeasures event in which the aircrews were required to defend their aircraft against the simulated launch of surface to air missiles (SAM). As with the semifinal activity, B-52 'G' and H, and FB-111 aircrews simulated the launch of a SRAM missile shortly after each simulated bomb run. After being scored at LaJunta, Colo., all aircraft climbed back to high altitude and proceeded to their home base.

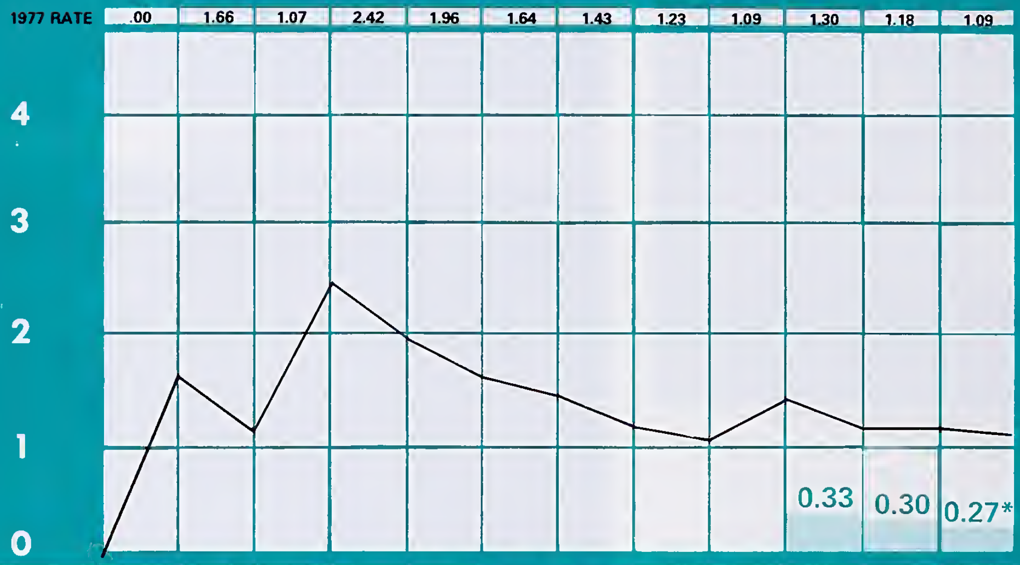
In this year's competition, 21 bomber units were represented in the finals. Sixteen of the 21 units were B-52s; two were FB-111s; two were F-111s and one was a Vulcan.

In the tanker division, 35 units participated in the finals. This includes 25 active duty KC-135 units, eight Air National Guard and two Air Force Reserve units.

During the same period combat ready tanker crews participated by flying two modified celestial naviga-

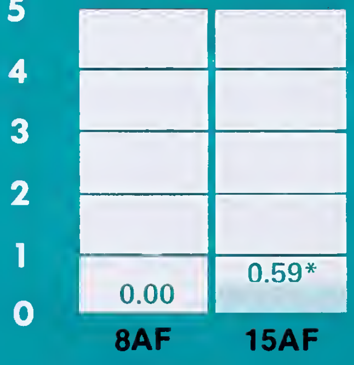
1978 Year End Flying Safety Rate

SAC CLASS A MISHAP RATE (PER 100,000 FLYING HRS)



MISHAPS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1977	0	1	0	2	0	0	0	0	0	1	0	0
1978	0	0	0	0	0	0	0	0	0	1	0	0

1978 SUBORDINATE CMD RATES



MISHAP STATUS

B-52D	OCT 78

LEGEND ⌒ =1977 RATE
* ESTIMATED

tion legs with a celestial time control exercise scored on each termination. The top two tanker crews from each unit identified in the preliminary phase competed in the semifinal phase of the competition.

The semifinal phase was conducted on Oct. 11, 12, 13 and 14 for bomber crews and nights of Oct. 11 and 12 for tanker crews. In this phase each of the four bomber crews flew one mission from their home base. On each mission the crews were required to enter the competition common routing northwest of Wichita, Kan., at a specified time directed in the operations order. They then proceeded to the high altitude initial point (IP) near Dodge City, Kan., for a simulated bomb run on Hitchland STR. The run was scored for position accuracy as well as release timing. The aircrews then proceeded along the common point for Giant Voice I missions at Guthrie, Tex. After a couple of short low altitude nav leg segments, the aircrews made a simulated bomb run on Post STR near Lubbock Tex., and then continued on the second low altitude target complex at Lefors, Tex. On both low level sites the aircrews were required to make a double simulated release bomb run on the designated targets. In addition, electronic countermeasures (ECM) tactics were employed on the bomb run at Lefors. The B-52 'G' and 'H' model and FB-111 aircraft were required to simulate the launch of a SRAM after each bomb run. After exiting the low altitude and common routing, all aircraft proceeded to their home base.

KC-135 tanker aircrews were required to enter the competition common routing north of St. Louis, Mo. Here they started a celestial navigation leg west bound to Hastings STR, Neb. The navigators used celestial navigation techniques and procedures to direct their aircraft to the precise scoring point at Hastings at the controlled time. After crossing the scoring point, all aircraft turned north bound to Bismarck STR, N.D., where the aircraft were scored for position accuracy and control timing at the designated termination point. After being scored, the participants entered a maneuver area where they could adjust their timing for the next event, an orbit exercise scored at Fallon STR, Mont. In this activity, which simulates an air refueling rendezvous, the KC-135 aircrews were required to cross an air refueling control point (ARCP). As the aircraft crossed the point the first time, they started a left turn and set up for an orbit pattern. The downwind leg was adjusted so as to make the turn inbound which would permit the aircraft to cross the ARCP at the exact point and at the specified control time. After crossing the ARCP at the completion of the orbit exercise all aircraft proceeded back to their home base.

Out of the semifinal phase, the top bomber and/or tanker crew from each unit was identified and allowed to participate in the final phase on the nights of Oct. 18 for tankers and Oct. 19 for bombers.

While the tanker crews flew the same common routing for the final phase, the ARCP was adjusted slightly to provide an added dimension to the competition activity.

All crews who participated in the final phase attended the competition symposium held at Barksdale in late October.

GIANT VOICE '78

OFFICIAL TROPHY STANDINGS

FAIRCHILD TROPHY

1	380BMW	4281 points
2	28BMW	4198 points
3	379BMW	4067 points

MATHIS TROPHY

1	509BMW	2936 points
2	380BMW	2924 points
3	27TFW	2845 points

SAUNDERS TROPHY

1	28BMW	1479 points
2	410BMW	1476 points
3	924ARS	1458 points

CRUMM TROPHY

1	28BMW	541 points
2	319BMW	541 points
3	416BMW	538 points

MEYER TROPHY

1	380BMW	4467 points
2	27TFW	4462 points
3	509BMW	4439 points

NAVIGATION TROPHY

1	924ARS	1079 points
2	410BMW	1074 points
3	97BMW	917 points

DOOLITTLE TROPHY

1	8AF	3139 points
2	15AF	2802 points

BOMBING TROPHY

1	509BMW	1958 points
2	380BMW	1955 points
3	379BMW	1930 points

SRAM TROPHY

1	319BMW	1892 points
2	380BMW	1828 points
3	509BMW	1769 points

ECM TROPHY

1	92BMW	589 points
2	28BMW	541 points
3	416BMW	535 points

BEST CREW (B-52)

1	379BMW, S-02	2144 points
2	319BMW, R-11	2102 points
3	416BMW, E-12	2091 points

BEST CREW (KC-135)

1	924ARS, R-113	1077 points
2	28BMW, E-110	1050 points
3	384ARW, E-108	1037 points

BEST CREW (F/FB-111)

1	380BMW, S-52	2236 points
2	509BMW, E-23	2175 points
3	27TFW, TAC-1	2169 points

BEST CREW (VULCAN)

1	RAF 1	1961 points

GIANT THRUST II

THE MAINTENANCE VIEW

Continued from Page 11

tors can be attributed to the test's success. The most significant changes were in the area of integrated combat turnaround procedures. We were given the authority to load bombs, refuel and accomplish certain maintenance actions simultaneously. This can be translated into a time savings, thus increasing aircraft availability. These new procedures were tested by a Multi-Command Safety Survey Team in April 1978. (These new procedures were verified through a B-52D System Safety Engineering Analysis in April 1978.)

Reflecting on what happened during the test, and the preparation we made prior to the test, leads me to the conclusion that two factors were responsible for its success — People and Planning. The people, both TDY and permanent party, were absolutely magnificent. A positive "Can Do" attitude was prevalent from day one and that attitude became stronger with each passing event. I don't want to belabor the point, but everyone associated with the test from cooks to wheel and tire specialists could not seem to do enough for each other and the mission. It takes people to make anything of this magnitude succeed, but it takes special people with desire and motivation to make it come off the way it did.

Although people made it happen, the planning that went into the test was no minor undertaking. Many long hours were invested to cover each minute detail.

Headquarters SAC started the initial planning in late 1977, and a strawman operations order was developed by SAC and the 43d Strategic Wing for a meeting in June 1978. That meeting was the actual kick-off for the detailed planning effort. Manning augmentation was discussed at each level to determine AFSCs, skill levels and special requirements. Each supervisor was contacted and his problems and requirements were identified. At this same meeting, additional equipment requirements were identified and the basic concept of operations was discussed to include: mission duration, launch intervals, manned versus unmanned spare aircraft, systems to be evaluated, evaluation criteria, etc. Actual details as to how and when were left up to the 43d Strategic Wing for resolution. Following the meeting, the operations order was released and the wing started final, detailed preparations.

The first order of business was to determine some realistic times associated with the turnaround of aircraft. This action filled two squares in that it provided factors for scheduling of aircraft and it familiarized our people with the integrated combat turnaround procedures. Three practice turns were made to (1) evaluate basic procedures and equipment placement and to validate predicted timing, (2) determine the impact of accomplishing a phase inspection in conjunction with the turn and (3) the effect of night lighting and clearing inflight discrepancies. These practices revealed that from the time an aircrew departed an aircraft, maintenance could turn an aircraft in under five hours when no major maintenance was required.

During these drills, we identified some other areas that aided us during the actual test. We found that by positioning the bomb trailers at the rear of the aircraft, it was not necessary to wait for the aircraft to be parked. Trailers could be prepositioned anytime after an aircraft departed on its mission, thereby permitting flexibility in the munitions delivery schedule.

With two bomb loading teams (one external/one internal) working at a time, a phase inspection in progress, refueling started and specialists arriving to clear in-flight discrepancies, it was difficult to identify the real crew chief. Recognizing that this is an age old problem, we solved it by providing color coded, light weight vests for the crew chief, munitions supervisor and the phase team chief. This proved to be a valuable aid to participants as well as observers during the actual test.

Armed with information from the practice turnarounds, we were able to discuss philosophy concerning scheduling of aircraft. I might add that this was a highly contested subject. Everyone concerned had an opinion and was prepared to defend it until the end of time. Opinions ranged from total free flow to scheduling all fourteen aircraft and cancelling the test over the first deviation. We elected to use twelve aircraft to support the operation with two unmanned spares. Using twelve aircraft, four three-ship cells were formed. Based on this formula, maintenance had seven and one-half hours between missions to turn the aircraft. The seven and one-half hours resulted from the interval between cells and the mission duration.

Maintenance made efforts to turn the aircraft as soon as possible and this was normally accomplished in less than five hours. In the event a spare was used, the aircraft it replaced became the second spare and was given priority repair. This proved to be highly effective and kept the perturbations to a minimum. Everyone was aware of the next scheduled turn time and all maintenance actions were oriented to this timing. It became a predictable and orderly flow and supervision and management could respond to major actions that threatened its interruption. The formula used was undoubtedly the most important decision made in the planning phase.

With respect to people, a great deal of thought was given to the needs of TDY personnel. Coordination with transportation and food services was accomplished to determine optimum schedules in support of the required twelve hour shifts. It became evident that shift changes would have to be planned to permit transportation resources the flexibility to move over five hundred people in a timely manner. Shifts were staggered with one and one-half hour separation to facilitate this critical timing. Since TDY personnel were being housed approximately eight miles from the main base, this compounded the logistics movement problems.

Special attention was given to off-duty activities and an all-ranks club was opened with hours of operation tailored to the work shifts. Increasing the stock levels in the base exchange annex, in addition to expanding the line of merchandise, was also geared to anticipated needs and desires of the augmentees. Shuttle buses were established between the dormitory area and main base functions to permit ease of travel. Movie schedules and snack bar operations were also adjusted to meet the schedules of TDY personnel.

Since the augmentees would be tired after 17 to 23 hours of flying across the Pacific, it was very important to get them to quarters as expeditiously as possible. Using an aircraft dock for a one-stop processing center, procedures were developed which could move fifty people per hour. Pretested by permanent party personnel, further streamlining was accomplished and TDY personnel encountered no delays. The following day, they were briefed on the test objectives, methods of operation and safety concerning their jobs and work areas. After the briefing, personnel were given a bus tour of their work areas by their respective squadrons and they were integrated into the shops. Work schedules were established to insure an even distribution of TDY and permanent party personnel on each shift.

The final stages of planning were focused on the flightline. Each aircraft was assigned a parking revetment which would be its home for the duration of the test. Debriefing functions were centralized in the same area and crews made out the AF Form 781A in duplicate. The copy was taken to debriefing so that a 781A always remained at the aircraft. This procedure worked well and debriefing averaged about seven minutes per crew.

Immediately following debriefing, representatives from Maintenance Control, Field Maintenance and Avionics Maintenance reviewed the AFTO Forms 349 and called them into Job Control for dispatch of specialists. Brevity Codes called in by crews permitted maintenance to meet aircraft with engine/alternator problems and determine required maintenance prior to engine shutdown. This proved to be a definite advantage in many cases.

The War Readiness Spares Kit (WRSK) was identified to be the primary source of supply, in order to validate demand data, and was prepositioned to aid maintenance. Prior to the test, components in the WRSK were bench-checked for assured serviceability. Certain components which required lengthy uncrating and build-up were positioned at the respective shops to further reduce time delays. If an asset was used, a replacement was ordered against the affected aircraft with a delivery destination of the shop. OMS positioned Conexes at each revetment and stocked them with ladders, flashlights and expendables such as engine oil and hydraulic fluid. Launch vehicles were staffed with specialists and quick change parts to facilitate maintenance actions at takeoff. Job Control aligned its functions to provide recovery, launch and heavy maintenance controllers in addition to the specialist dispatchers. All of these plans worked well and continually reaffirmed and reenforced the planning decisions.

I have attempted to point out some of the things that we did in the maintenance and support areas to prepare for and execute a vital test of the B-52D. The test has been considered a resounding success from every viewpoint. The data collectors may have desired some adverse actions such as engine changes, fuel leaks or more extended weather holds to evaluate our response to those events and what impact they would have on the overall test. We did have an entrance hatch problem that plagued us and I guess the analysts will have to be satisfied with that. Although this article is written from a maintenance standpoint, we cannot forget the outstanding job that the crews did and our hats are off to them. The theme of this article was built around people and planning. I firmly believe that if you properly plan an operation and take care of your people, you can't help but have a winner.

Continued from page 9

GIANT THRUST II

AN AIRCRAFT COMMANDER'S VIEW

anxiously waiting to learn if we had encountered any problems during the flight. We presented the recovery team with one copy of the writeups and took a carbon copy to the maintenance debriefing where work order numbers were assigned. This was a critical part of the rapid turnaround plan because it allowed maintenance to begin fixing system malfunctions immediately.

From maintenance debriefing we proceeded to the squadron where operations debriefing brought an end to the first mission. At this point, we had approximately one hour to grab a bite to eat prior to the next pretakeoff briefing. At the end of the second sortie, which was identical to the first, we had 17 hours of crew rest, in preparation for the next day's flying.

Using the unique procedure of loading bombs simultaneously with refueling and other servicing, the aircraft were regenerated in minimum time. During the week of GIANT THRUST II a three-ship cell of "BUFFS" rolled down the runway every 2 hours and 40 minutes. The amazing fact is that this was accomplished with only 14 aircraft and 18 crews. One might anticipate problems with aircraft systems in such an aggressive test, but that was not the case. In fact, on the eight sorties my crew and I flew during the exercise, we were synchronous capable on each mission and did not have a single hydraulic pack or alternator failure. If you are familiar with the "D" model, this fact speaks for itself. If you are not, let me say that throughout the exercise, maintenance was outstanding and all aircraft were kept in excellent condition.

GIANT THRUST II was designed primarily to collect data on quick turn maintenance capabilities, but from a crew member's viewpoint, it was an excellent opportunity to increase our own proficiency in conventional bombing. The conventional experience gained by SAC crew members during the "Arc Light" days has all but vanished in the crew force today and only a few GIANT THRUST II participants had any combat experience at all. During the first few sorties of the test, there were some rough spots, with intercell communications probably being the roughest. But as our experience level increased during the week so did the proficiency and confidence of all crews. During the last few missions each cell functioned smoothly and exhibited the coordination necessary to survive in an actual combat situation. Although not a primary objective of the test, each crew member obtained valuable experience in conventional bombing and cell tactics that might someday prove decisive should SAC be called upon to support a real contingency operation somewhere in the world.

PROFESSIONAL PERFORMERS

Individuals selected for these pages as SAC's top professional performers of the month are chosen from nominations made by all SAC units. Selection is made only after all nominations have been carefully screened and those chosen meet the highest standards of excellence outlined in SACR 127-2.

SAFETY MAN Captain Jonathan B. Mullin, 341st SMW, Malmstrom AFB, is the SAC Safety Man of the Month. As Missile Safety Officer for the 341st SMW, he is responsible for managing a missile safety program encompassing 200 Minuteman ICBMs and launch facilities, 20 launch control facilities, and a work force of 4500 military and 600 civilian personnel. Captain Mullin has been instrumental in developing safety awareness among missile personnel. He developed creative missile safety lesson plans with color slides that are used in training sessions. He also developed a "Missile Mishap" report that capsulizes "lessons learned" on mishaps occurring in other Minuteman wings. Captain Mullin has served as safety advisor to several missile mishap boards during the past two years. In each instance, he received letters of appreciation from 15AF appointed board presidents.

In April 1978, the 341st started its ninth year in the SAC *Combat Crew* "Hall of Fame" for going over eight years without a major missile mishap. Capt Mullin's outstanding work in the missile safety area during these past two years has definitely helped this wing earn these awards. He well merits selection as SAC Safety Officer of the Month.

MINUTEMAN CREW The 341st Strategic Missile Wing, Crew E-077, including 1Lt Charles G. Crupper, Jr., MCCC, and 2Lt Dennie L. Love, DMCCC, expected their alert to be more difficult than usual because the squadron was undergoing code change. This greatly increased maintenance activity and subsequent weapon system reaction. In addition to the code change teams in the field, there was also a maintenance team at one of the launch facilities, as well as a camper alert team on-site for an insecure "B" circuit combination. When the maintenance team called and asked to be released, the crew dispatched the alert response team to change the "A" circuit combination. As the ART was on its way to the site, they discovered a wrecked automobile on the side of the road. In the car they found a woman, bleeding heavily, and an injured baby. The combat crew immediately directed first aid actions and treatment for shock. Then they called the wing command post and hospital for guidance. They asked for an ambulance, helicopter, and state trooper to be sent to the scene and relayed instructions from the hospital to the ART. When a doctor arrived and said the woman was near death, Crew E-077 remained calm and continued to pass information back and forth between the hospital and doctor. While this was taking place, the crew had to react to several serious weapon system problems which included almost all of their sorties going into the radio mode and three automatic restarts of the weapon system computer. In addition, they had to perform all the duties related to their position as squadron command post. Under severe stress, Crew E-077 handled these problems skillfully and professionally.

MAINTENANCE MAN Senior Airman Arthur D. Thomas, 305th OMS, Grissom AFB, is SAC Maintenance Man of the Month. Airman Thomas, an EC-135 aircraft assistant crew chief, earned his award for superior initiative, technical knowledge and sustained superior performance. While TDY, he fulfilled all crew chief responsibilities with outstanding results. During this period, his aircraft accumulated 18 consecutive on-time takeoffs. Another example of his professionalism is the 92% maintenance reliability rate of his aircraft for the past year. He has achieved an outstanding MSEP record by passing 12 consecutive evaluations since January 1976. He has been instrumental in training new personnel, and consistently emphasizes the proper use of technical data, tools and materials. His efforts also contributed significantly to the "excellent" MSEP rating achieved by his branch. Airman Thomas is a valuable asset to the SAC maintenance effort and the United States Air Force.

TITAN CREW TITAN II Missile Combat Crew E-060, 570th Strategic Missile Squadron, is named SAC Combat Crew of the Month. Crewmembers are: Capt Charles E. Hanks, MCCC; 1Lt Roberto Zapata, DMCCC; A1C William D. Leslie, Jr., MSAT; and SrA Jon M. Bibler, BMFT.

During an extensive modification program, a major electrical fire occurred at one of the complexes. All circuits were shorted and the complex was left without primary or backup AC electrical power. Capt Hanks and his crew directed the maintenance personnel to evacuate the silo. They quickly isolated the affected circuits and systems and began the Fire Manual Checklist. Within minutes, the MSAT and BMFT donned their self-contained breathing apparatus and cautiously penetrated the silo equipment area. They encountered extremely heavy smoke and total darkness and immediately evacuated the silo. Over the next three and one-half hours, they reentered the silo four times to insure that the fire was completely extinguished, to isolate systems to limit damage, and to assess the overall situation. Each time the crew wore Chemox breathing equipment and for visibility had only flashlights and battery operated lanterns. Even the control center was in total darkness from the time emergency lighting system battery power was exhausted until temporary power was restored via an extension cord channeled through the air intake shaft. To further complicate the situation, the temperature in the control center was near 100 degrees most of the time. The crew was forced to use considerable innovation. To conserve energy, they first removed excessive light bulbs from monitoring equipment. They next insured that the equipment was configured so that no accidental water spill could occur when AC power was restored. Finally, after 13 hours, the ordeal was over and the complex was again on commercial power. The timely reactions of this crew under difficult and trying conditions were superb. Their extensive system knowledge permitted a thorough, expeditious relay of information to the Missile Potential Hazard Team which greatly facilitated returning the complex to operation.

HALL OF FAME

TACTICAL FLYING

OVER TWENTY-TWO YEARS

170 AREFG, McGuire (NJANG)	NONE

OVER TWENTY YEARS

171 AREFW, Greater Pittsburgh (PAANG)	Mar '58
157 AREFG, Pease (NHANG)	Jun '58
97 BMW, Blytheville	Aug '58

OVER NINETEEN YEARS

940 AREFG, Mather (USAFR)	May '59
307 AREFG, Travis	Sep '59

OVER EIGHTEEN YEARS

19 BMW, Robins	Oct '60

OVER SEVENTEEN YEARS

151 AREFG, Salt Lake City (UTANG)	Feb '61
161 AREFG, Sky Harbor (AZANG)	Apr '61
126 AREFW, Chicago O'Hare (ILANG)	Apr '61
134 AREFG, McGhee Tyson (TNANG)	Aug '61

OVER SIXTEEN YEARS

340 AREFG, Altus	Feb '62
301 AREFW, Rickenbacker	Jul '62
96 BMW, Dyess	Aug '62

OVER FOURTEEN YEARS

160 AREFG, Rickenbacker (OHANG)	Dec '64

OVER THIRTEEN YEARS

320 BMW, Mather	Jul '65

OVER TWELVE YEARS

452 AREFW, March (USAFR)	Sep '66

OVER ELEVEN YEARS

92 BMW, Fairchild	Feb '67
55 SRW, Offutt	Jul '67
2 BMW, Barksdale	Aug '67
319 BMW, Grand Forks	Dec '67

OVER NINE YEARS

5 BMW, Minot	Feb '69
42 BMW, Loring	Sep '69
141 AREFW, Fairchild (WAANG)	Oct '69

OVER EIGHT YEARS

28 BMW, Ellsworth	May '70

OVER SIX YEARS

7 BMW, Carswell	Mar '72
101 AREFW, Bangor (MEANG)	Mar '72
416 BMW, Griffiss	May '72
305 AREFW, Grissom	Aug '72
376 SW, Kadena	Nov '72

OVER FIVE YEARS

379 BMW, Wurtsmith	Apr '73

OVER FOUR YEARS

384 AREFW, McConnell	Mar '74
189 AREFG, Little Rock (ARANG)	May '74
43 SW, Andersen	Dec '74

ICBM

OVER FOURTEEN YEARS

90 SMW, F E Warren	Jul '64
1 STRAD, Vandenberg	Sep '64

OVER THIRTEEN YEARS

308 SMW, Little Rock	Aug '65

OVER EIGHT YEARS

341 SMW, Malmstrom	Apr '70

OVER FIVE YEARS

390 SMW, Davis-Monthan	Jul '73

OVER FOUR YEARS

351 SMW, Whiteman	Oct '74

To gain listing in the Hall of Fame, a SAC or ARF unit must be Class A mishap-free for 48 months.

SAC SAFETY SCREEN

55 SRW, Offutt: IP Lt Col Ted Steig, FP Lt Col Wallace M. Brundrett, Jr., NN Lt Col Terry R. Gathman, BO SMSgt John L. Huebner

93 BMW, Castle Crew IT-15: IP Capt Steven J. Neal, IN Capt Donald Flynn, IBO SSgt James R. Niswender

28 BMW, Ellsworth Crew S-101: IP Capt Richard L. O'Halloran, CP Capt Robert J. Finnegan, Jr., IN Capt Edward A. Ponder, IS TSgt Charles D. Orr

319 BMW, Grand Forks Crew R-120: P Capt Francis E. Veldman, CP 1Lt Patrick C. Mallon, N 2Lt David C. Gray, BO A1C Eddie J. Cole

44 SMW, Ellsworth Crew R-183: MCCC Capt David T. Lane, DMCCC 1Lt Thaddeus Jablonski

90 SMW, F. E. Warren Crew R-177: MCCC Capt Frank M. Blau, Jr., DMCCC 2Lt Jeffrey G. Gamme II

91 SMW, Minot Crew E-021/E-022: MCCC Capt Howard W. Cummings, Jr., DMCCC 1Lt Stephen J. Welch

308 SMW, Little Rock Crew E-034: MCCC Capt James J. O'Brien, DMCCC 2Lt Douglas Williams, MSAT Sgt James S. Doherty, MFT SrA Rodney F. Mollise

321 SMW, Grand Forks Crew E-060: MCCC Capt Henry J. Yeackle III, DMCCC 2Lt Willis W. Clark

321 SMW, Grand Forks Crew R-145: MCCC 1Lt Charles J. Talley, DMCCC 2Lt Bernard H. Simelton

351 SMW, Whiteman Crew R-152: MCCC 1Lt Terry M. Petrie, DMCCC 2Lt Ted W. Hinesley

The SAC Safety Screen is an honor roll of SAC's most professional crews. To gain listing on the Screen, crew members must be nominated by their unit commanders and meet high selection criteria of experience in their aircraft or missile system *IAW SACR 127-2.*

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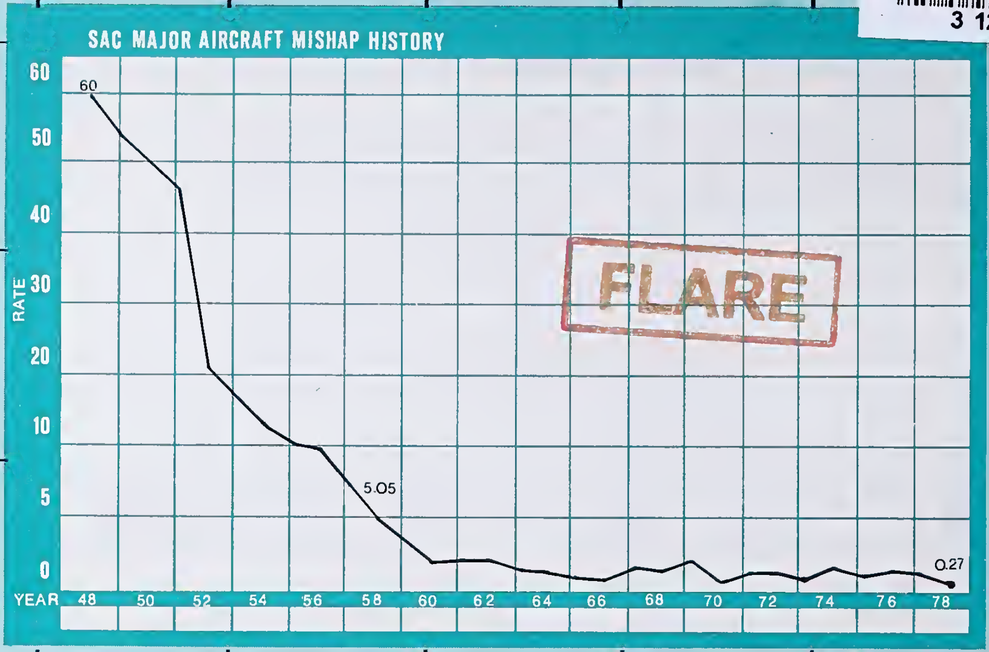

FLARE